

REMARKS/ARGUMENTS

Claim 4 is being amended to correct a minor transcription error, and claims 17-20 are being canceled. Claims 1-16 remain in the application. Reconsideration of this application in view of this amendment and the following remarks is respectfully requested.

The Applicants hereby confirm their election of the Group I claims 1-16 for further prosecution in this case. The cancellation of Group II claims 17-20, which were withdrawn from further consideration by the Examiner as directed a non-elected invention, is without prejudice to the Applicants' right to present such claims in a continuing application.

The Examiner rejected claims 4 and 10-11 of the application under 35 U.S.C. §112 for failing to particularly point out the invention. In response to that rejection, claim 4 is being amended to correct a minor transcription error, and now complies fully with 35 U.S.C. §112.

The rejection of claims 10-11 under 35 U.S.C. §112, citing an unclear disclosure of the Applicants' spring means, is respectfully traversed. Means for spring compression are depicted in Fig. 2A (spring-loaded portion 48) and Fig. 8B (compression spring 66) of the drawings, and are expressly described at page 5, lines 14-16 and at page 6, lines 20-22 of the application as filed. One skilled in the art would recognize that these springs are effective to apply virtually constant pressure to the monolithic honeycomb supports via pressure grids 34 and 58, respectively, to compensate fully for reactor wall and honeycomb monolith thermal expansion changes. Accordingly claims 10-11 particularly point out embodiments that are expressly described and enabled by the specification, and the rejections thereof under 35 U.S.C. §112 should be withdrawn.

The Examiner further rejected claims 1-4, 10 and 11 of the application under 35 U.S.C. §102 as anticipated by U. S. Patent No. 4,407,785 (Pfefferle). Reconsideration and withdrawal of that rejection are respectfully requested for the following reasons.

Among the problems addressed by the invention is that of vibration damage that can be suffered by monolithic honeycomb supports through differential expansion between a plurality of honeycomb monoliths and the walls of honeycomb reactors in the course of reactor operation (page 1, lines 23-28 of the specification). In accordance with the invention this problem is addressed by providing "means for maintaining said plurality of monoliths under virtually constant compression." (claims 1-16 of the application). Through the use of such means the honeycombs are protected from both excessive pressure and insufficient retaining force that may be applied thereto by the reactor housings while the reactors are in use.

Pfefferle fails to teach or suggest such means. The materials preferred for monolithic honeycomb supports according to Pfefferle are ceramics (column 8, lines 1-3 of the patent) that

most typically have low thermal expansion coefficients. Thus when Pfefferle reactors comprising conventional metal reactor enclosures (22) and retainers (26, 27) reach high reactor operating temperatures of 2500°F. or more (column 1, line 38 of the patent), expansion of the reactor enclosures (22) and retainers (26, 27) will exert reduced retaining force against honeycomb catalyst elements 11-17, rendering them susceptible to vibration damage.

Pfefferle fails to recognize this source of catalyst damage, and therefore provides no guidance whatever for avoiding it. More specifically, Pfefferle suggests no means whatever for maintaining catalyst elements 11-17 under constant compression, as claims 1-4, 10, 11 and 14 of the application require. For this reason Pfefferle clearly fails to anticipate those claims within the meaning of 35 U.S.C. §102, and accordingly the rejection of those claims as fully met by Pfefferle should be withdrawn.

The Examiner further rejected claims 5 and 6 of the application under 35 U.S.C. §103 as unpatentable over Pfefferle further in view of EP 0 226 306 (EP '306). The latter reference was cited to address the failure of Pfefferle to disclose individual monoliths cemented at their edges. This rejection is respectfully traversed for the following reasons.

Contrary to the concept of cementing monoliths together as disclosed by the Applicants, EP '306 teaches that the individual honeycomb monolith units must be capable of sufficient movement relative to one another within the reactor that thermal expansion or contraction of the units can be accommodated (page 2, lines 40-42 of the reference). The disclosure concerning cementing at page 4, line 20 of the reference refers only to the cementing of projecting ceramic block interlocks (10,11) into vertical grooves (9) in each of the honeycomb monolith units (1-5), these units then making up an unbonded layer of honeycomb monoliths such as disclosed in Figs. 1-3 of EP '306.

The fact that the honeycomb monoliths of the reference are not bonded together but instead free to move with respect to each other is shown by the increased separation of the honeycombs from each other as the reactor vessel sidewalls (6) expand away from the honeycomb layer as the reactor is heated to operating temperature (page 4, lines 27-41 of EP '306). Therefore, it is respectfully submitted that EP '306, whether taken alone or in combination with Pfefferle, completely fails to teach or suggest the subject matter of claims 5 and 6 of the application.

Finally, the Examiner has rejected claims 8, 9, 12 and 13 of the application under 35 U.S.C. §103 as unpatentable over Pfefferle taken with Betteken et al., U.S. Patent No. 4,195,064 (Betteken). Betteken was cited to address the failure of Pfefferle to disclose monolith support

means including a support grating with support rods extending from the upper stack to the lower stack.


The catalyst beds of Betteken appear to comprise granulated or pelletized catalysts rather than honeycomb monoliths. Accordingly, Betteken, like Pfefferle, fails to teach or suggest a support grating having a grate pattern similar to junctures between cemented monoliths (Applicants' claim 8), and further fails to show support rods extending through aligned openings in honeycomb monoliths with a bottom plate engaging the lowermost monoliths (Applicants' claim 9). Also evident is the failure of both Pfefferle and Betteken to disclose grates with compression means mounted to apply constant force to honeycomb monolith stacks (Applicants' claim 12), and similar force-applying grates with compression means that include rods extending through such stacks (Applicants' claim 13).

In the absence of any disclosure or suggestion to provide grates, support rods and compression means as required by rejected claims 8, 9, 12 and 13, it is clear that the subject matter of those claims is neither taught nor suggested by the combination of Pfefferle and Betteken. Accordingly, reconsideration and withdrawal of the rejection of claims 8, 9, 12 and 13 under 35 U.S.C. §103 on reference to Pfefferle and Betteken are respectfully requested.

In light of the foregoing amendments and remarks, the Applicants respectfully submit that the remaining claims of this application are now in condition for allowance. Accordingly favorable reconsideration of this application and the issuance of a Notice of Allowance herein are courteously solicited.

Applicants believe that no extension of time is necessary to make this Reply timely, but contingently request that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as is necessary to make this Reply timely, if in fact such an extension is required. In that contingency the Office is hereby authorized to charge any necessary extension fee or surcharge to the deposit account of Corning Incorporated, Deposit Account 03-3325.

Respectfully submitted,



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